CLAIMS

Claims 1 – 16 (previously canceled).

Claim 17 (original): A method for controlling aircraft lift, the aircraft having at least one wing, the method comprising:

mounting an oscillating aero surface to the aircraft wing;

connecting a resonant frame to the oscillating aero surface;

mounting an actuator to the resonant frame creating a controlled resonant actuator; ~~and~~

producing a sinusoidal force on the resonant frame resulting in a resonant deformation in the resonant frame and resonant-sinusoidal displacement of the aero-surface;

projecting the top portion of the oscillating aero-surface cyclically into the air flowing over the top surface of the wing; and

disturbing the smooth flow over the wing causing local flow separation and vortex generation structures.

Claim 18 (canceled).

Claim 19 (currently amended): The method of claim 17 wherein the resonant frame includes columns, and further comprising:

applying transverse to the motion of the aero-surface such that the sinusoidal force developed by the actuator on the resonant frame results in a resonant rocking motion of the resonant frame, resonant deformation of the columns, and resonant-sinusoidal displacement of the aero-surface.

Claim 20 (original): The method of claim 17 and further comprising:

mounting the aero surface flush with an upper surface of the aircraft when the actuator is unpowered.

Claim 21 (original): The method of claim 20 and further comprising:

transmitting acoustic frequency alternating current through the voice coil device; and

producing a force, the force varying sinusoidally in time.

Claim 22 (original): The method of claim 21 and further comprising:

matching the frequency of the voice coil alternating current with the elastic resonance frequency of the resonant frame and oscillating aero-surface mass-spring system thereby resulting in amplitude oscillatory motion of the aero-surface perpendicular to the aircraft wing surface.

Claim 23 (canceled).

Claim 24 (original): The method of claim 23 and further comprising:

reducing the vacuum pressure at local points on the wing; and

changing the coefficient of lift which can be used to maneuver the aircraft or to suppress aerodynamic flutter.

Claim 25 (original): The method of claim 20 and further comprising:

returning the oscillating aero-surface to a position flush with the upper wing surface upon depowering.

Claim 26 (currently amended): The method of claim 17 and further comprising:

providing two or more controlled resonant actuators in cooperative relation ~~systems~~ within the aircraft wing for modulating disturbances.

Claim 27 (original): The method of claim 26 and further comprising:

operating each system independently of the other systems with specific displacement, phase relationship, and operation frequency of the second device is selected to amplify the lift modification effects of the first device.

Claim 28 (original): The method of claim 27 and further comprising:

originating a wave-like flow disturbance structure at a first device;

increasing the disturbance as subsequent effectors cause flow disturbance resonance and the attenuation of the lift effects follows a similar spatial-time pattern with the

cyclic displacement of each of the aero-effector devices being actively canceled resulting in a return to smooth flow over the wing.

Claim 29 (previously added): A method for controlling the pressure, velocity, boundary layer structure, separation, or vortex structure across a flow surface, the method comprising:

mounting an oscillating aero surface to the flow surface;

connecting an elastic frame to the oscillating aero surface;

mounting an actuator to the elastic frame; and

producing a periodic force on the elastic frame resulting in motion of the aero surface selected from the group consisting of under-resonant, near resonant, resonant, and super-resonant.

Claim 30 (previously added): The method of claim 29 and further comprising:

dynamically changing the pressure at local points on the flow surface;

changing the instantaneous lift coefficient; and

changing the moment coefficients.

Claim 31 (previously added): The method of claim 29 and further comprising:

projecting a top portion of the oscillating aero surface cyclically into the air flowing over the flow surface; and

disturbing the smooth flow over the flow surface causing local flow separation and vortex structures.

Claim 32 (canceled).

Claim 33 (previously added): The method of claim 29 and further comprising:

mounting the aero surface flush with the flow surface when the actuator is unpowered.

Claim 34 (previously added): The method of claim 29 and further comprising:

returning the oscillating aero-surface to a position flush with the flow surface upon depowering.

Claim 35 (canceled).

Claim 36 (canceled).

Claim 37 (previously added): The method of claim 29 and further comprising:

actively attenuating flow disturbances whereby a transient flow disturbance created by the operation of a first device is decreased in intensity by the operation of one or more subsequent devices under open-loop or closed loop control.

Claim 38 (previously added): The method of claims 37 and further comprising:

operating a cooperative system composed of two or more devices with specific position, displacement amplitude, phase relationship, duty cycle, and operation frequency of at least one of the devices selected to amplify favorable lift modification effects or the pressure, velocity, boundary layer structure, separation, or vortex structure across a flow surface.

Claim 39 (previously added): The method of claim 29 wherein the actuator operates in a linear or a rotary fashion under forces selected from the group consisting of electrical, magnetic, electro-magnetic, pneumatic, hydraulic, piezoelectric, magnetostrictive, and thermally-induced structural and producing a force or moment on an elastic structure or frame or aero surface from the linear operation or the rotational operation of the actuator.

Claims 40 – 54 (canceled).